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Napake v plastomenih zvarih - Razvrstitev

Imperfections in thermoplastic welds - Classification

Unregelmäßigkeiten an Schweißverbindungen von thermoplastischen Kunststoffen - Einteilung

Défauts dans les assemblages soudés en thermoplastiques - Classification

Ta slovenski standard je istoveten z: EN 14728:2005

ICS:

25.160.40 Varjeni spoji in vari Welded joints

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Foreword

This document (EN 14728:2005) has been prepared by Technical Committee CEN/TC 249 “Plastics”, the secretariat of which is held by IBN/BIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2005, and conflicting national standards shall be withdrawn at the latest by November 2005.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This document specifies a classification and a description of imperfections likely to be encountered in thermoplastic welded joints.

This document applies to the following welding processes:

— heated tool welding;

— electrofusion welding;

— hot gas welding;

— extrusion welding.

This document applies to the following group of materials:

— PVC-C;

— PVC-U including PVC-NI, PVC-RI, PVC-HI;

— PP including PP-B, PP-H, PP-R;

— PE;

— PVDF;

— ECTFE;

— FEP;

— PFA.

This document is not concerned with the search for the possible influence of these defects on the behaviour of joints in relation to the different types of stress to which the latter may be subjected or on method for preventing such defects.

It cannot therefore be used for the acceptance of welds which is defined in quality level standards (see [1]).

Only defects giving rise to discontinuities of materials or changes in shape are taken into consideration in this document, specifying their type, their shape and their positions, without however always indicating their origin or their causes.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

CEN ISO/TS 17845, *Welding and allied processes — Designation system for imperfections (ISO/TS 17845:2004)*

3 Symbols and designations

The abbreviations used for thermoplastic materials are listed in Table 1.

Table 1 — Abbreviations used for thermoplastic materials

Abbreviation	Thermoplastic material
PVC-C	Polyvinyl chloride chlorinated
PVC-U	Polyvinyl chloride unplasticized
PVC-NI	Polyvinyl chloride normal impact
PVC-RI	Polyvinyl chloride raised impact
PVC-HI	Polyvinyl chloride high-impact
PP-B	Polypropylene block copolymer
PP-H	Polypropylene homopolymer
PP-R	Polypropylene random copolymer
PE	Polyethylene
PVDF	Polyvinylidene fluoride
ECTFE	Ethylene chlorotrifluoroethylene
FEP	Fluorinated ethylene propylene
PFA	Perfluoroalkoxy

4 Definition and classification of imperfections

The numbering system used for the classification of imperfections shall be as defined in CEN ISO/TS 17845.

The classification of imperfections for thermoplastic materials is given in Table 2.

Explanations for characters 3, 4 and 5 are given in Annex A.

Table 2 — Imperfections in thermoplastic welds

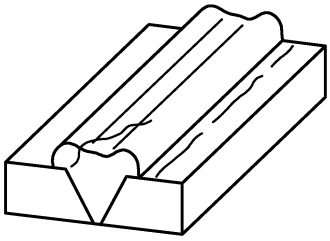
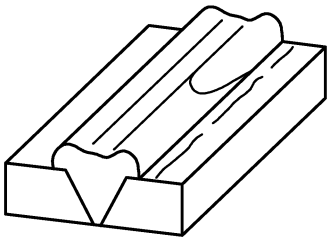
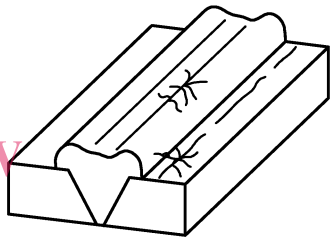
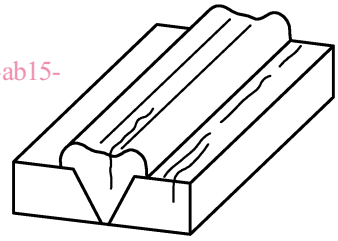
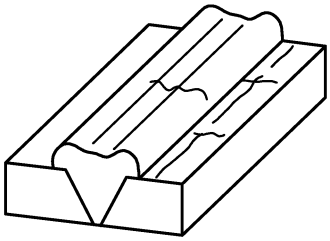
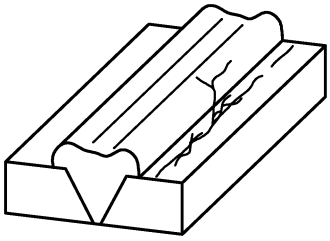
Numbers	Designations	Descriptions	Illustrations
1AAAA	Cracks	Break in continuity of the material	
1AAAK	Crack at bead start/stop position	Crack between the start and stop positions of a welding run	
1AAJA	Group of disconnected cracks	Set of grouped cracks of any orientation	
1ABAA	Longitudinal crack	Crack whose main direction is close to that of the axis of the weld	
1ACAA	Transverse crack	Crack whose direction is more or less perpendicular to the axis of the weld	
1AFAA	Branching crack	Set of interconnected cracks in the form of arborescence	

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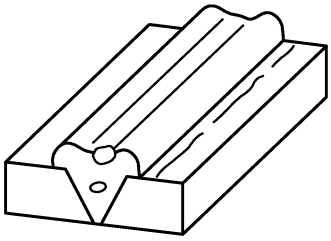
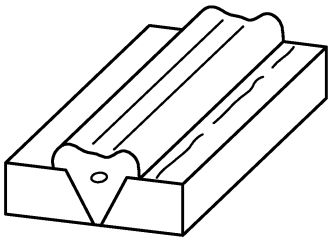
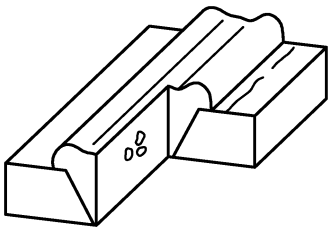
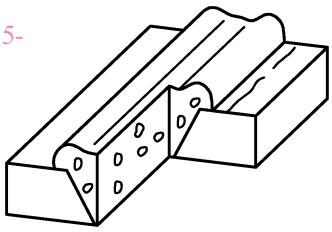
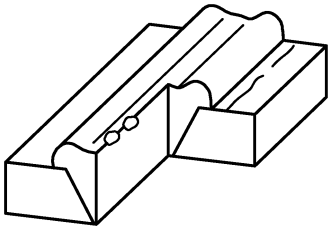
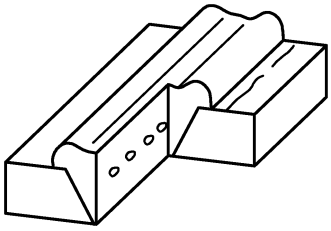
Table 2 (*continued*)

Numbers	Designations	Descriptions	Illustrations
2AAAA	Cavity	Open or closed cell	
2BAAA 2BGAA 2BJAA 2BEAB	Gas cavity	Cavity formed by evolution or entrapment of gas(es) This cavity is distinguishable by having a similar colour as the surrounding material. It could be: Spherical Elongated Tubular (wormhole)	
2BAFA	Clustered porosity	Group of gas cavities	
2BGGB	Uniformly distributed porosity	Spheroidal gas cavities regularly distributed in the weld	
2BAMF	Surface pore	Small gas cavities opening out on the surface	
2BIHB	Linear porosity	Gas cavities distributed along a line parallel to the axis of the weld	

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